

REMARKS

In this Amendment, Applicants amend the Specification to correct typographical errors, amend claims 1 and 2 to more appropriately define the present invention, and add new claims 29 – 37 to protect additional aspects related to the present invention. Upon entry of this amendment, claims 1 – 37 remain pending, with claims 5 and 9 – 28 being withdrawn from consideration as drawn to a nonelected invention.

Regarding the Office Action:

In the Office Action, the Examiner objected to the Specification; rejected claim 2 under 35 U.S.C. § 112, second paragraph; rejected claim 1 under 35 U.S.C. § 103(a) as unpatentable over Yashima (U.S. Patent No. 5,685,949) in view of Nozawa, et al. (U.S. Patent No. 5,255,153); rejected claims 1 – 4 and 6 under 35 U.S.C. § 103(a) as unpatentable over Nozawa in view of Yashima; and rejected claims 7 and 8 under 35 U.S.C. § 103(a) as unpatentable over Nozawa in view of Yashima as applied to claims 1 – 4 and 6, and further in view of Hirano, et al. (U.S. Patent No. 6,120,661) and Sekiya, et al. (U.S. Patent No. 5,269,881).

Applicants appreciate the Examiner's thorough examination of this application, especially the detailed citations which aided Applicants in reviewing the Examiner's comments. Applicants respectfully traverse the objections and rejections, as detailed above, for the following reasons.

Procedural Issues Regarding Applicants' IDS filed on June 28, 2001:

Regarding Applicants' IDS, filed on June 28, 2001, the Examiner did not initial citations of the foreign patent document listed in the "Other Documents" section of the PTO-1449 form returned with the October 30, 2003 Office Action. Applicants attach herewith a copy of the PTO-1449 form originally filed on June 28, 2001. Applicants request that the Examiner

acknowledge consideration of the listed document by initialing the appropriate portion of the attached copy of the PTO-1449 form, and request a copy be returned to Applicants with the next communication from the Office. Applicants respectfully remind the Examiner that: "*Examiners must consider all citations submitted in conformance with the rules and this section*, and their initials when placed adjacent to the considered citations on the list or in the boxes provided on a form PTO-1449 ... provides a clear record of which citations have been considered by the Office." M.P.E.P. § 609(III)(C)(2).

Regarding the Election / Restriction:

In response to page 2, lines 1 – 4 of the Office Action, wherein the Examiner asserts that claim 9 is not readable on Fig. 3, Applicants traverse the Examiner's characterization of the species election after Applicants' election of specie I, Fig. 3. Reasoning supporting this traversal is based on the description

"[a]lthough, in third embodiment, the RF trap 715 is placed before the DC power source 711 used for electrostatic chuck, another RF trap may be positioned before another DC power source used other purposes. The RF trap 715 can be inserted in the conductive line between the RF plate electrode and the chalk coil of the plasma processing apparatus of the first embodiment (FIGs. 3, 5 and 6). In this case, the electrical length of the RF trap is again $\lambda/4$ of the applied radio frequency," on page 15, lines 11 – 16 of the specification.

Applicants deem this further restriction within the elected specie unreasonable, as Applicants have demonstrated by the above citation that there would be no unreasonable burden on the Examiner to examine claim 9 in light of the other claims already having been examined.

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Regarding the Amendments to Claims 1 and 2:

Applicants amend claims 1 and 2 to more appropriately define the invention and to correct typographical errors. Applicants submit that the amendments contain no new matter, in accordance with the requirements of 37 C.F.R. § 1.121(f).

Applicants also direct the Examiner to the application as originally filed to support the amendment. Support for the amendment may be found, for example, in original claim 2 and in the description of “[t]herefore, to overcome the problems in the prior art technique, a plasma processing apparatus that can reduce a loss of RF power even if a radio frequency of 60MHz or higher is applied to the electrode is provided in one aspect of the invention,” on page 3, lines 28 – 30 in the specification.

Therefore, the amendments to the claims contain no new matter. Applicants respectfully remind the Examiner that “[a]mendments to an application which are supported in the original description are NOT new matter.” M.P.E.P. § 2163.07, emphasis in original.

Applicants submit that these amendments should render the application in condition for allowance after consideration of the remarks that follow, and should not place any burden on the Examiner insofar as raising new issues or requiring further searches of the art to reconsider these claims, as amended.

Regarding New Claims 29 – 37:

Applicants have introduced new claims 29 - 37 to provide coverage for other aspects of Applicants’ invention. Support for new claim 29 may be found, for example, in the description “[h]owever, if the contact area S is fixed small, ... while minimalizing the loss of RF power,” on page 9, lines 26 – 32 in the specification. In addition, claim 29 is based on original claim 1, and claims 30 – 37 are based on original claims 1 – 9. As such, according to claim 29, Applicants

can make the contact area S small, as shown in Fig. 3. Applicants therefore submit that new claim 29 – 37 are supported by the originally-filed application, and therefore do not constitute new matter.

Regarding the Objection to the Specification:

Regarding the Examiner's objection to the specification "because of the following informalities" (Office Action, p. 2), Applicants have amended the paragraph beginning on page 6, line 30, and the paragraph beginning on page 7, line 24, to correct typographical errors. The former is to correct the Examiner-cited typographical error to properly label "shock absorber 117;" the latter is to correct a typographical error in capacitance units from "10pH" to "10pF."

Applicants therefore deem the Examiner's objection to the specification overcome, and accordingly request withdrawal of the objection.

In making various references to the specification and drawings set forth herein, it is understood that Applicants are in no way intending to limit the scope of the claims to the exemplary embodiments described in the specification and illustrated in the drawings. Rather, Applicants expressly affirm that they are entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Regarding the Objection of Claim 2 Under 35 U.S.C. § 112, Second Paragraph:

Regarding the rejection of claim 2 under 35 U.S.C. § 112, second paragraph, Applicants have amended claim 2 to replace "10pH" with "10 pF" for the reasons indicated above.

Applicants submit that this amendment overcomes the Examiner's 35 U.S.C. § 112, second paragraph, rejection.

Applicants submit that the amendment to claim 2, in addition to correcting an obvious typographical error, is supported, at least based on the dashed line C in Fig. 4A and the

description "FIG. 4A is a graph of the plasma capacity (pF) as a function of the radio frequency f (MHz) applied to the RF plate electrode 104 shown in FIG. 3," on page 7, lines 12 – 14 in the specification.

Furthermore, the specification teaches "[t]o reduce the parasitic capacity," on page 8, line 15. Therefore, the claimed equation " $C < 1210 * f^{0.9}$ " restricts the capacitance of the reduced parasitic capacity (C). The curve of Fig. 4A shows the equation " $C = 1210 * f^{0.9}$ " between the plasma capacitance (C) and frequency (f). To reduce the parasitic capacity (C), the capacitance of the parasitic capacity (C) is equal to or smaller than the plasma capacitance (C). The allowable capacitance of the parasitic capacity (C) is in the area under the curve of Fig. 4A. For example, the allowable capacitance of the parasitic capacity (C) may be equal to or smaller than 5 pF, when frequency is 500 MHz. Similarly, the allowable capacitance of the parasitic capacity (C) may be equal to or smaller than 10 pF, when frequency is 200 MHz; the allowable capacitance of the parasitic capacity (C) is equal to or smaller than 20 pF, when frequency is 100 MHz; and the allowable capacitance of the parasitic capacity (C) is equal to or smaller than 30 pF, when frequency is 60 MHz. Therefore, contrary to the Examiner's assertion on pp. 2 – 3 of the Office Action, Applicants have demonstrated that the 10 pF parasitic capacity (C) is not the only value of (C). The allowable capacitance of the parasitic capacity (C) changes according to frequency. It is clear that the relation between frequency (f) and the allowable capacitance of the parasitic capacity (C) is given by the claimed equation " $C < 1210 * f^{0.9}$."

Applicants therefore deem the rejection of claim 2 overcome. The pending claim fully complies with the requirements of 35 U.S.C. § 112, second paragraph, and Applicants respectfully request withdrawal of the rejection.

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Regarding the Rejection of Claim 1 under 35 U.S.C. § 103(a):

Applicants respectfully traverse the rejection of claim 1 under 35 U.S.C. § 103(a) as unpatentable over Yashima in view of Nozawa. Applicants respectfully disagree with the Examiner's arguments and conclusions, and respectfully submit that a *prima facie* case of obviousness has not been established.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. See M.P.E.P. § 2143.

The Examiner does not show that all the elements of Applicants' claims are met in the cited references, does not show that there is any suggestion or motivation to modify the cited references to result in the claimed invention, and does not show there would be any reasonable expectation of success from so doing.

Prior Art Reference Must Teach or Suggest All the Claim Elements

Applicants respectfully point out that the first requirement for establishing a *prima facie* case of obviousness has not been established, namely, Yashima, taken alone or in combination with Nozawa, does not teach or suggest each and every element of Applicants' claimed invention. This is evidenced, not only by the Examiner's admission of Yashima's deficiencies (Office Action, p. 4), but also from the arguments that follow.

To begin, Applicants respectfully point out to the Examiner that it "is impermissible within the framework of section 103 to pick and choose from any one reference only so much of

it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” See In re Wesslau, 147 U.S.P.Q. 391 (C.C.P.A. 1965), emphasis added. See also M.P.E.P. § 2141.02. Applicants submit that, for the reasons detailed below, the Examiner is only using so much of the cited references to support the Examiner’s position, to the exclusion of other parts necessary to give a full appreciation of what the references fairly suggest to one of ordinary skill in the art.

Applicants’ independent claim 1 recites , among other things,

“an RF power source for applying a radio frequency to either the RF plate electrode or the opposite electrode to generate plasma between the two electrodes, wherein the radio frequency is 60 MHz or higher, and when the radio frequency is represented as f (MHz), a parasitic capacity C (pF) between the grounded portion of the housing and a conductive portion through which the radio frequency propagates is less than $1210 \cdot f^{0.9}$.”

Because the loss of RF power is so small when the radio frequency is 13.56 MHz (as disclosed in Yashima and Nozawa), the loss of RF power does not need to be reduced, and the parasitic capacity C does not need to be reduced. Only when radio frequency is equal to or over 60 MHz, should the loss of the RF power be restrained. Moreover, in contrast to the present invention, Nozawa teaches “Subsequently, a high-frequency voltage of 13.56 MHz is applied between the upper and lower electrodes from the RF power source 10 by turning on the ON/OFF switch³⁴” (Nozawa, col, 4, lines 27 – 29). Likewise, Yashima teaches “Upper electrode 20 and lower electrode 30 may be connected to an RF power supply 40 which provides a radio frequency power of 13.56 MHz and 100 W, for example” (Yashima, col. 7, lines 27 – 29). Therefore, Yashima and / or Nozawa provide no teaching or suggestion of “an RF power source for applying a radio frequency to either the RF plate electrode or the opposite electrode to

generate plasma between the two electrodes, wherein the radio frequency is 60 MHz or higher..." (Applicants' claim 1).

This clearly demonstrates how Yashima and / or Nozawa are different from the present invention as claimed. Yashima and / or Nozawa taken alone or in combination, still do not combine to teach or suggest at least the above-quoted elements of Applicants' independent claim 1. Applicants therefore submit that the Examiner is using only so much of the cited references that will support the Examiner's position to the exclusion of other necessary parts to enable one of ordinary skill in the art to fully appreciate it.

Therefore, the Examiner's application of Yashima and / or Nozawa as references does not satisfy the tenants of a proper 35 U.S.C. § 103(a) rejection. The Examiner has therefore not met an essential criteria for establishing a *prima facie* case of obviousness, wherein "the prior art reference (or references when combined) must teach or suggest all the claim limitations." See M.P.E.P. §§ 2142, 2143, and 2143.03.

Suggestion or Motivation to Modify or Combine Reference Teachings

The M.P.E.P. sets forth:

"However, "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. *The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device.*" *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984)." M.P.E.P. § 2144.04, italics added.

As such, the present invention, as recited in independent claim 1, cannot be attained based merely on Yashima, or on a combination of Yashima with Nozawa. One skilled in the art

would only arrive at the present claimed invention by consulting Applicants' disclosure.

Therefore, the only way to construct the claimed invention from the cited references would be to rely on aspects related to the present invention. Such reliance, however, would constitute improper hindsight reasoning. Applicants submit that these references still do not combine to produce the claimed elements of the present invention. Applicants have already demonstrated that a worker in the art would not have been able to combine parts of Yahsima with Nozawa to produce Applicants' claimed invention, and the combination of these references still would not teach or suggest at least the above-quoted elements of Applicants' independent claim 1. Second, Applicants note that one of ordinary skill in the art must have this motivation or reason *without the benefit of Applicants' specification* to modify the references.

As already demonstrated, such combination of these references *a priori* fails to establish obviousness of the claimed invention. Furthermore, Applicants have pointed out deficiencies in the cited prior art that render nugatory any indication that the cited references would give any motivation or reason to one of ordinary skill in the art to modify them *without the benefits of Applicants' specification*.

Therefore, Applicants submit that Yashima and Nozawa do not suggest the desirability of any modification to result in Applicants' claimed invention.

Reasonable Expectation of Success Required for Prima Facie Obviousness

In addition, regarding the required reasonable expectation of success, as evidenced from previous arguments regarding Yashima and Nozawa's disclosures, Applicants submit that there would be no reasonable expectation of success to be derived from modifying Yashima with Nozawa, as this would diverge at least from Applicants' claimed "an RF power source for applying a radio frequency to either the RF plate electrode or the opposite electrode to generate

plasma between the two electrodes, wherein the radio frequency is 60 MHz or higher...”

(Applicants’ claim 1). This also demonstrates that the Examiner’s reliance on Yashima and Nozawa is not sufficient to establish *prima facie* obviousness.

Since Applicants have already demonstrated: (1) deficiencies in the cited references, (2) that they are not combinable to produce the present claimed invention, and (3) that they do not provide any suggestion or motivation to produce the present claimed invention, it logically flows that there would be no reasonable expectation of success expected by one of ordinary skill in the art when combining Yashima and Nozawa.

In summary, the Examiner has not met any of the essential criteria for establishing a *prima facie* case of obviousness. Applicants have demonstrated above that the Examiner: (a) has not shown that all recitations of Applicants’ claimed invention are taught or suggested by Yashima and Nozawa; (b) has not shown any requisite suggestion or motivation to modify Yashima and Nozawa to produce Applicants’ claimed invention; and (c) has not shown there would be any reasonable expectation of success from modifying Yashima and Nozawa in order to produce the present claimed invention. Thus, Applicants submit that the Examiner’s reliance on these references fails to establish *prima facie* obviousness.

Therefore, Applicants submit that independent claim 1 is allowable, for the reasons argued above.

Regarding the Rejection of Claims 1 – 4 and 6 under 35 U.S.C. § 103(a):

Applicants respectfully traverse the rejection of claims 1 – 4 and 6 under 35 U.S.C. § 103(a) as unpatentable over Nozawa in view of Yashima. Applicants respectfully disagree with the Examiner’s arguments and conclusions, and respectfully submit that a *prima facie* case of obviousness has not been established.

The requirements for establishing a *prima facie* case of obviousness have been set forth in the previous section. Applicants respectfully point out that Nozawa, taken alone or in combination with Yashima, does not teach or suggest each and every element of Applicants' claimed invention. This is evidenced, not only by the Examiner's admission of Nozawa's deficiencies (Office Action, p. 4), but also from the arguments contained in the previous section pertaining to independent claim 1. Applicants submit that the arguments detailed in the previous section suffice to overcome this 35 U.S.C. § 103(a) rejection over Nozawa in view of Yashima, as they sufficed to overcome the 35 U.S.C. § 103(a) rejection over Yashima in view of Nozawa.

Therefore, Applicants submit that independent claim 1 is allowable, for the reasons presented above.

Regarding dependent claims 2 – 4 and 6:

Finally, Applicants note that the M.P.E.P. sets forth that “[i]f an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious.” M.P.E.P. § 2143.03. Therefore, Applicants submit that independent claims 2 – 4 and 6 are allowable, for the reasons argued above and are also allowable at least by virtue of their dependence from allowable base claim 1. Therefore, Applicants respectfully submit that the Examiner should withdraw the 35 U.S.C. § 103(a) rejection.

Regarding the Rejection of Claims 7 and 8 under 35 U.S.C. § 103(a):

Applicants respectfully traverse the rejection of claims 7 and 8 under 35 U.S.C. § 103(a) as unpatentable over Nozawa in view of Yashima as applied to claims 1 – 4 and 6, and further in view of Hirano and Sekiya. Applicants respectfully disagree with the Examiner's arguments and conclusions, and respectfully submit that a *prima facie* case of obviousness has not been established.

The requirements for establishing a *prima facie* case of obviousness have been set forth in the previous section. Applicants respectfully point out that Nozawa and Yashima, taken alone or in combination with Hirano and Sekiya, does not teach or suggest each and every element of Applicants' claimed invention, as recited in independent claim 1. This is evidenced, not only by the Examiner's admission of Nozawa's and Yashima's deficiencies (Office Action, pp. 4 and 5), but also from the arguments contained in the previous sections pertaining to independent claim 1. Applicants submit that the arguments detailed in the previous section suffice to overcome this 35 U.S.C. § 103(a) rejection over Nozawa in view of Yashima, as they also sufficed to overcome the 35 U.S.C. § 103(a) rejection over Yashima in view of Nozawa.

In addition, Applicants note that Hirano also fails to cure the deficiencies of Nozawa and Yashima in that it is (1) directed to a glass substrate processing apparatus (*See Abstract, claims, generally*), and (2) it does not teach or suggest at least the previously-quoted elements of Applicants' independent claim 1. Likewise, Applicants note that Sekiya also fails to cure the deficiencies of Nozawa and Yashima in that it does not teach or suggest at least the previously-quoted elements of Applicants' independent claim 1.

Applicants understand that the Examiner has only relied on Hirano and Sekiya for the rejection of dependent claims 7 and 8. Nevertheless, since dependent claims 7 and 8 depend from base claim 1, and since Hirano and Sekiya fail to cure the deficiencies of Nozawa and Yashima in the rejection of base claim 1, claims 7 and 8 are deemed allowable. Therefore, Applicants submit that independent claims 7 and 8 are allowable, for the reasons argued above and are also allowable at least by virtue of their dependence from allowable base claim 1.

Therefore, Applicants respectfully submit that the Examiner should withdraw the 35 U.S.C. § 103(a) rejection.

Conclusion:

In view of the foregoing, Applicants request reconsideration of the application and submit that the objection and rejections detailed above should be withdrawn. This Amendment should allow for immediate and favorable action by the Examiner. Applicants submit that the pending claims are in condition for allowance, and request a favorable action.

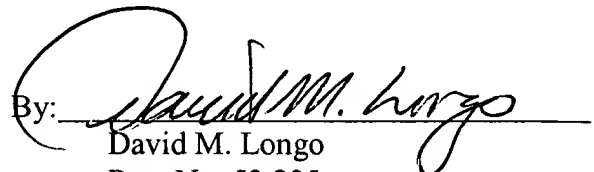
Should the Examiner continue to dispute the patentability of the claims after consideration of this Amendment, Applicants encourage the Examiner to contact Applicants' undersigned representative by telephone to discuss any remaining issues or to resolve any misunderstandings. Applicants' undersigned representative would welcome the opportunity to discuss the merits of the present invention with the Examiner if telephone communication will aid in advancing prosecution of the present application.

Please grant any extensions of time under 37 C.F.R. § 1.136 required in entering this response. If there are any fees due under 37 C.F.R. § 1.16 or 1.17 including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: January 30, 2004

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